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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,487	09/23/2003	Noboru Yamanaka	117260	1244

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EXAMINER

CAO, ALLEN T

ART UNIT PAPER NUMBER

2652

DATE MAILED: 04/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/667,487

**Applicant(s)**

YAMANAKA, NOBORU

**Examiner**

Allen T Cao

**Art Unit**

2652

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/23/03</u> . | 6) <input type="checkbox"/> Other: _____  |

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1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 3, 5-8, 10, 12, 14 and 16 –17 are rejected under 35 U.S.C. 102(e) as being anticipated by Shukh et al (US. 2002/0176214 A1).

Shukh et al discloses a thin film magnetic head having at least one writing element [0029], the writing element including a first magnetic film (main pole 11 including main pole extension 15; notes that poles of the magnetic head are made by magnetic material), a second magnetic film 12, a gap film 13, a coil film 14 and third magnetic films (19, 19); the first magnetic film including a first pole piece/tip (the end of the pole layer facing to the air bearing surface); the second magnetic film including a second pole piece/tip; the gap film 13 being located between the first pole piece and the second pole piece; the first magnetic film and the second magnetic film being magnetically combined at a joint 41 as viewed backward from the first pole piece and the second pole piece ([0029], lines 9-12); the coil film winding vertically around the joint 41 ([0029], lines 12-13); the third magnetic films (19, 19) being disposed at both sides of the first pole piece by a given distance, all as set forth in claim 1.

Regarding claim 3, Shukh et al discloses that the third magnetic films are disposed between a medium and the outermost coil turn of the coil film 14.

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Regarding claim 5, Shukh et al discloses that the third magnetic films are divided.

Regarding claim 6, 10 and 12, Shukh et al discloses that the magnetic head includes a reading element comprised of a giant magnetoresistive effective film (see [0028]).

Regarding claims 7, 14 and 16-17, Shukh et al discloses a head supporting device to support the thin film magnetic head (figure 1).

Regarding claims 8, Shukh et al discloses a magnetic recording medium to be magnetically written and read with cooperated with the magnetic head device (Figures 8-11 and see also [0028] and [0029]).

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2, 4, 9, 11, 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shukh et al.

Regarding claim 2, Shukh et al discloses that the given distance is from 20nm to 60nm (equal to 0.02  $\mu\text{m}$  to 0.06  $\mu\text{m}$ ; see [0029], lines 23-25 and [0030], lines 8-9).

Shukh et al does not disclose that the given distance is in the range of 1.5 $\mu\text{m}$  to 6 $\mu\text{m}$ .

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the given distance of Shukh et al as set forth from the range of 0.02  $\mu\text{m}$  - 0.06  $\mu\text{m}$  to the range of 1.5  $\mu\text{m}$  - 2  $\mu\text{m}$ .

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The rationale is as follows: One of ordinary skill in the art would have been motivated to modify the given distance of Shukh et al as set forth from the range of  $0.02\text{ }\mu\text{m}$  -  $0.06\text{ }\mu\text{m}$  to the range of  $1.5\text{ }\mu\text{m}$  -  $2\text{ }\mu\text{m}$  through an obvious engineering routine lab experimentation for picking a specifically ranges in order to receive more fringing flux generated by the pole and prevent erasing or weakening of previously recorded information on adjacent tracks.

Regarding claim 9, Shukh et al discloses that the magnetic head includes a reading element comprised of a giant magnetoresistive effective film (see [0028]).

Regarding claim 13, Shukh et al discloses a head supporting device to support the thin film magnetic head (figure 1).

Regarding claim 4, Shukh et al does not explicitly disclose that the third magnetic films are so disposed as to cover the coil film 14.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify/manufacture the third magnetic films of Shukh et al such that the third magnetic films are so disposed as to cover the coil film.

The rationale is as follows: One of ordinary skill in the art would have been motivated to modify/manufacture the third magnetic films of Shukh et al such that the third magnetic films are so disposed as to cover the coil film in order to intercept the fringing flux created by coil/pole thus improve write characteristics of the head.

Regarding claim 11, Shukh et al discloses that the magnetic head includes a reading element comprised of a giant magnetoresistive effective film (see [0028]).

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Regarding claim 15, Shukh et al discloses a head supporting device to support the thin film magnetic head (figure 1).

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen T Cao whose telephone number is (571) 272-7569. The examiner can normally be reached on Mon - Thurs (7:30 - 6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Allen Cao  
Primary Examiner

AC  
April 17, 2005